U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 2
Emergency and Remedial Response Division
290 Broadway, 19th Floor
New York, New York 10007-1866

By Email

June 17, 2015

Ms. Suzy Walls
ARCADIS U.S., Inc.
114 Lovell Road, Suite 202
Knoxville, TN, 37934

RE: Comments on Addendum 1 to the Data Gaps Sampling and Analysis Plan and the Addendum 1 to the Quality Assurance Project Plan for the Data Gaps Sampling and Analysis Plan, dated April 2015, Rolling Knolls Landfill Superfund Site, Chatham, New Jersey

Dear Ms. Walls:

The U.S. Environmental Protection Agency (EPA) has completed its review and is providing comments on Addendum 1 to the Data Gaps Sampling and Analysis Plan (SAP) and the Addendum 1 to the Quality Assurance Project Plan for the Data Gaps Sampling and Analysis Plan, dated April 2015 prepared by ARCADIS U.S., Inc. on behalf of Chevron Environmental Management Company, Lucent Technologies Inc., (now known as Alcatel-Lucent USA Inc.) and Novartis Pharmaceuticals Corporation (the Group) for the Rolling Knolls Landfill Superfund Site, located in Chatham, New Jersey. This document has also been reviewed by the New Jersey Department of Environmental Protection (NJDEP). All comments have been collated as appropriate and attached. In addition, NJDEP has also submitted a list of remedial investigation general concerns and analytical requests.

Although previously stated in EPA's comments dated October 9, 2014 on the Data Gaps Sampling and Analysis Plan, "EPA believes that many uncertainties still exist regarding the nature and extent of contamination at the site. The overall sampling approach must be adjusted to allow analysis of all site related contaminants and full delineation of the site." Addendum 1 to the SAP/QAPP reverts back to the targeted approach, only sampling for contaminants that previously exceeded site remediation standards in a nearby soil sample, which was previously disapproved.

EPA disapproves Addendum 1 to the Data Gaps SAP and QAPP as submitted, and requires the Group to amend the document in accordance with the attached comments. A

revised Addendum 1 to the Data Gaps SAP and QAPP must be submitted within twenty-one (21) days of your receipt of this letter. All of the enclosed comments must be addressed including the attached Remedial Investigation General Concerns and Analytical Requests. If all comments are not adequately addressed, EPA may exercise its right to modify the document and provide the revised document to you for implementation or to direct you to make specified modifications to the document.

If you believe that any changes are necessary other than those directed by EPA's enclosed comments, those changes must be discussed with, and approved by, EPA's Project Coordinator prior to re-submittal of the document. Those discussions may be memorialized in a progress report or other communication to EPA's Project Coordinator. In addition, all changes made to the document, other than those made specifically at the direction of EPA, must be specified in writing to EPA upon re-submittal of the document.

EPA would like to further discuss with you the attached comments, NJDEP's concerns, and data reporting. Please review all comments and contact me within three (3) days of receipt of this letter to schedule a conference call with EPA and NJDEP.

Sincerely yours,

Tanya Mitchell

Tanya Mitchell
Special Projects Branch
Remedial Project Manager

cc: J. McKenzie, NJDEP

EPA's Comments on Addendum 1 to the Data Gaps Sampling and Analysis Plan and the Quality Assurance Project Plan dated April 2015 Rolling Knolls Landfill Superfund Site, Chatham, New Jersey

General Comments

1) As previously stated in EPA's General Comment 1 dated October 9, 2014, regarding the Data Gaps Sampling and Analysis Plan, and the Quality Assurance Project Plan for the Data Gaps Sampling and Analysis Plan, September 2014, "The sampling and analysis plan appears to be designed to be a much targeted approach, only sampling for contaminants that previously exceeded site remediation standards in a nearby soil sample. However, the nature of contamination at the site appears to be highly variable and the targeted sampling approach seems to ignore the possibility of any of the other site related contaminants of concern (those not found in the nearby discrete soil sample) to be elevated above site remediation standards in these areas. This is particularly concerning in areas where sample locations may be modified to be located further from the original soil sample due to the edge of the landfill being confirmed to be different than what was previously estimated/delineated. The sampling approach should be adjusted, and all samples within and outside the newly delineated waste materials should be sampled for all of the site related contaminants." All samples collected as part of the approved Data Gaps SAP/QAPP and/or Addendum shall be analyzed for the complete list of laboratory analyses and analytes identified in Table 1 of the approved SAP dated November 2014.

2) Please record and provide the sampled intervals and sample elevations for all future samples collected for the Rolling knolls Superfund site.

2) EPA comments and recommendations provided for the Sampling and Analysis Plan should be incorporated into the QAPP, as appropriate.

3) Please ensure that EPA is provided with an Electronic Data Deliverable (EDD) submittal of all recent data following the step-by-step instructions provided in the EPA Region 2 EDD webpage. http://www.epa.gov/region2/superfund/medd.htm.

Addendum 1 Data Gaps Sampling and Analysis Plan
Specific Comments:

1. Section 1 Introduction, Paragraph 2: The Addendum is an addition to the approved November 2014 Data Gaps SAP. Please delete the last sentence.

2. Section 1.1 Objectives: This section should be revised to reflect that the objective is to complete the objectives originally identified in the Section 1.1 Objectives of the Data Gaps SAP dated November 2014. To meet these objectives USEPA and NJDEP have identified additional soil and sediment samples that are needed to further delineate the nature and extent of contamination at the site. In addition to the samples proposed by USEPA and the Group, NJDEP has also identified additional soil and sediment samples which are attached. The addendum should reflect samples requested from all parties.

3. Section 1.1 Objectives: NJDEP previously commented that in addition to Human Health-Based Soil Remediation Standards (SRS), NJDEP has issued Ecological Screening Levels (ESLs) that need to be included in the evaluation of soil, sediment, surface water, and pore water sample results. It does not appear that delineation to NJDEP's Ecological Screening Criteria is addressed in this SAP. It is assumed by NJDEP that additional delineation from what is proposed here will be required in order to complete the Ecological Assessments associated with the site. Please clarify.

4. Section 1.1 Objectives: Please include a detailed discussion regarding if and how, the topographic variations across the study area have been and will be considered when selecting sampling locations and sample intervals for delineation purposes.

5. Section 2. Additional Soil and Sediment Sampling: NJDEP requests that all future "soil and sediment samples will be collected in 6 inch increments [as stipulated in the NJPDES Field Sampling Procedures Manual (FSPM)] rather than the 1 foot intervals that are proposed. Although this would have ideally been done throughout the SI and RI process, it should be incorporated into the final stages of the delineation work associated with the site. In consideration of the historic data which included 1 foot sampled intervals, at least two delineation samples in 6 inch increments should be collected at each location at which horizontal delineation is proposed. For example, if the 0-1 foot interval is being delineated, samples should be collected at 0-6 inches (except for VOC samples) and at 6 inches – 12 inches.

A review of the soil data collected to date indicates a level of unpredictability in both the horizontal and vertical distribution of contaminants across the site. There are several sample locations that show increasing contaminant concentrations with depth (e.g. SS-46, SS-57, SS-63, SS-64, SS-73, SS-74, SS-75, SS-98, SS-101, SS-102, SS107, and SS-108). This needs to be considered when designing a soil sampling delineation strategy. In consideration of this, it is requested that more than just the surficial interval be evaluated at the delineation locations. Please include additional sample intervals at each proposed boring location in order to complete the vertical delineation of the identified contamination. This information should also be reflected on Table 1.

6. Section 2. Additional Soil and Sediment Sampling: To assist in the development of a Sampling Plan that will address the above referenced soil delineation concerns, enclosed please find a map of the Northern and Southern Areas of the Rolling Knolls Landfill site, Figure 3b. This map illustrates the minimum number of additional samples (from what was proposed in the April 2015 submittal) that will be necessary to fill the known data gaps. Be advised that these samples are in addition to, not in lieu of, the proposed sample locations on *Figure 3a* and *Figure 3b* of the April 2015 Addendum 1 proposal. The following sampled intervals are requested at the illustrated locations:

a. Perimeter Locations: Perimeter samples must be collected at the marked locations beyond the landfilled boundaries with soil samples collected from the 0-6" and 6"-12" intervals to characterize and delineate contamination in the vadose zone. If the water table is at the surface, these samples will serve to characterize and delineate surface soil contamination to the New Jersey Residential Direct Contact Soil Remediation Standard (NJDCSRS). At these same locations, soil samples must also be collected from saturated soil in the 30-36" interval below grade to further delineate soil contamination to the NJRDCSRS. If recent sample data have already been collected from any of the marked locations, clean sample results may be used to verify delineation in that location and depth or, conversely, to verify non-compliance in that location and a new soil sample collection point established out from that location. However, any existing clean perimeter sample locations will still require a vertical sample to address

both the inconsistent contaminant distribution and the vertical delineation data gaps associated with the site. In addition, if the existing perimeter sample results will be used to meet the delineation requirements, the results must be compared to the strictest applicable NJDEP- SRS.

b. Interior Landfill Samples: These interior samples must be collected at the marked locations within the landfilled boundaries with soil samples collected from the 0-6" interval immediately beneath the bottom of landfill materials to characterize and delineate contamination in the vadose zone. If the water table is encountered at this depth, these samples will serve to characterize and delineate soil contamination to the New Jersey Residential Direct Contact Soil Remediation Standard (NJDCSRS). At these same locations, soil samples must also be collected from saturated soil just above the underlying clay layer to vertically delineate soil contamination to the NJRDCSRS. If the Group collects soil samples at a depth shallower than the top of the clay layer rather than go directly to the clay layer, NJDEP has no objections; however, the vertical limit of contamination to the appropriate standard must be documented with soil sample results below the most stringent NJSRS.

c. Please note that two of the requested sample locations are within the footprint of, what appears to be, surface water bodies (e.g. the sample located directly north of SS-152 and the sample located due east of SS-10). Sediment samples are requested at these locations.

7. Section 2. Additional Soil and Sediment Sampling: Due to the level of unpredictability noted in the distribution of the many contaminants associated with the site, a revision to the proposal is requested to include analyses for all site-related contaminants of concern at all sampling points rather than limiting the analytical to select compounds. Please ensure all soil and sediment samples are analyzed for the complete list of laboratory analyses and analytes identified in Table 1 of the approved SAP dated November 2014.

8. Section 2.1.3 Soil Sampling Analyses, Paragraph 2: Please explain the reference "connection to the landfill." Clarify if both SS-174 as indicated here and SD-50 as indicated in Section 2.2 will be analyzed at the same time if the results from SD-49 show a "connection with the landfill."

9. Section 2.2.2 Sediment Sampling Procedures: Currently, the text states that sediment samples will be collected at 0-0.5' depth. Table 1 records the depth interval to be 0-1.0. Please clarify the final depth in the text, Table 1 and QAPP Worksheet #18 for consistency.

Addendum 1 to the Quality Assurance Project Plan for Data Gaps Sampling and Analysis Plan Specific Comments:

PROJECT MANAGEMENT and OBJECTIVES ELEMENTS
1. Worksheet #14 & 16: Please update the schedule in the worksheet to reflect the additional work being proposed.

MEASUREMENT/DATA ACQUISITION ELEMENTS
2. Worksheet #17: This worksheet also needs to be updated to reflect the sampling rationale for the proposed work.

3. Worksheet #18: See SAP Specific Comment 1.

4. Worksheet #20: Addendum 1 to the QAPP limits the parameters to be analyzed at each proposed sampling point. Given the level of unpredictability in the distribution of the many contaminants associated with the site, please include all site-related parameters in the proposed delineation sampling as specified in the approved Table 1 of the SAP.

This worksheet specifies duplicates for soil PCB and soil metals, but no duplicates for soil PCB congeners, and no duplicates for any sediment analyses (PCB aroclors, metals, pH, TOC). Please provide an explanation for why duplicates for the soil PCB congeners and sediment analyses are not being collected.

Tables

1) Table 1, Sampling Locations, Depths, and Analyses: Please provide a revised Table 1 to be consistent with the comments made in regard to number of proposed sample locations, sampled interval(s) at each boring location, analytical requirements, etc. The Notes and Footers should be modified, as appropriate.

Figures

1) Figure 3b
For SS-140, Figure 3B indicates that data for PCB congeners still has not been received. Do you know why this is, since the sampling date is January 2015 and we have all the other data? Please update figure, as appropriate.

Remedial Investigation General Concerns and Analytical Requests
Rolling Knolls Landfill Superfund Site, Chatham, New Jersey

Below are additional comments received from NJDEP. It should also be noted that it is not USEPA's practice to delineate nature and extent using Impact to Ground Water (IGW) SRS numbers. Although we may compare data to IGW numbers in the RI to see if there are exceedances, USEPA also uses GW data to provide another line of evidence as to whether there may be sources of GW contamination present. EPA typically does not use NJ IGW numbers, which are TBCs, to delineate in the RI.

General RI Concerns

1. General Comment: It is not apparent that the soil data collected in regard to the Site is being compared to all of the applicable NJ Site Remediation Standards (SRS). NJDEP's *Technical Requirements for the Remediation of Contaminated Sites* (N.J.A.C. 7:26E, a.k.a. "the Tech Rules") specify the criteria by which delineation is determined to be complete. In years past, comments were provided to USEPA by the NJDEP Case Manager in regard to previous RI proposals. It is noted that those previous comments also referenced N.J.A.C. 7:26E Remedial Investigation (RI) requirements as they pertain to this Site. Be advised that the currently proposed work falls short of meeting these previously stated requirements.

Rather than provide a point-by-point analysis of existing and proposed sampling data or locations, respectively, Arcadis is referred to N.J.A.C. 7:26E-4.2(a) 1 to determine the level of remedial investigation sampling required, based upon the future disposition they determine is appropriate for the site and surrounding properties. Please note that, regardless of future site use, areas of off-Site contamination must be delineated horizontally and vertically to the strictest applicable NJDEP Soil Remediation Standards (SRS).

a. Please clarify that delineation to the appropriate NJ Soil Remediation Standards (SRS) will be incorporated into the design and implementation of the RI sampling activities. Based on the maps and tables presented to date, it is not apparent that the delineation data are being compared to all of the applicable NJ SRS which should include, but not be limited to, the Impact to Ground Water (IGW) SRS.

2. General Comment: NJDEP previously commented that areas of incomplete soil contamination delineation appear to include the southeastern, northwestern, and eastern areas of the landfill. Based upon information presented, and depending on the future disposition of the Site, vertical (and horizontal) delineation may be incomplete across a large part of the landfill (again, see N.J.A.C. 7:26E-4-2(a) 1).

In addition, NJDEP had previously noted that lead and a few select other metals concentrations are elevated in soil and ground water on the western side of the landfill in red-hashed areas on the figures provided, and that delineation appears incomplete in this area and/or this area may be a potential hot spot. Depending on the disposition of the Site, Arcadis may also need to evaluate levels of PAHs to ensure compliance with the Tech Rules (e.g., whether the compliance requirement is to impact to ground water, residential, or non-residential remediation standards) within the landfilled areas. This needs to be considered when designing and implementing the RI delineation sampling.

3. General Comment: It is requested that when determining whether delineation is complete, that consideration be given to not only the sampled interval in relation to ground surface, but also to the elevation of the sample in relation to the elevation of the contamination being delineated. It is noted that, due to the topographic variations across the study area, some of the surficial delineation samples appear to be collected at slightly higher elevations than the contaminated interval(s) being delineated. Including the sample elevations (in addition to the sampled interval in relation to ground surface) on comprehensive data tables will enable Arcadis, the EPA and the DEP to effectively evaluate whether delineation of the identified contamination is truly complete (see comment D.1. below.).

a. This is especially critical when delineating beyond the landfill boundaries. The mode of migration and deposition of the contamination identified beyond the landfilled areas needs to be considered. If transport of this contamination is assumed to have occurred as suspended material in runoff from the landfilled areas during storm / rainfall events, it would be critical to assess lower elevation areas that would operate as depositional zones. If other modes of deposition (i.e. artificial filling, etc.) are suspected beyond the footprint of the landfill, additional sampling locations at varying elevations, including high spots, would be warranted.

b. Please clarify how it will be determined whether the waste within the landfill is contributing to the elevated dissolved phase concentrations of what are considered to be naturally occurring compounds (e.g. iron, aluminum, and manganese). As stated in previous comments, although these compounds are considered naturally occurring, the concentrations of these metals in ground water are sometimes notably higher within the landfilled area.

Analytical Data Requests

1. General Comment: In order to properly evaluate the proposed final phase of the RI work, it is requested that Arcadis provide the following information in the requested format: A comprehensive data results table which lists all soil results collected to date (including the most recent data gap sampling results) compared to all applicable NJ - SRS. At a minimum, the table should include the sample designations; sampled intervals; sample elevations; date of sampling; sampling results; all NJ-SRS and Screening Levels against which the data is being compared [including, but not limited to, the Residential Direct Contact Criteria (RDCC) SRS, the IGW SRS and the NJ Ecologic Screening Levels (ESLs)]; etc. This table should be cross-referenced to maps which illustrate the locations of all samples collected, to date, in regard to the site.

2. General Comment: To enable a more effective review of the monitoring well proposals as well as to put the updated data in context, the following information is requested to be provided:

a. *Monitoring Well Construction Table*. This table should include, but not necessarily be limited to, the following information for all site – related monitoring wells: total depth; well diameter; screened interval; top of casing elevation; ground surface elevation; etc. Please also include the construction specifications of any temporary well points that were advanced at the site. This table should be updated, as needed, in future reports.

b. The well logs associated with the "x" series of wells (X-1 through X-6) installed at the site. This should include the geologic / stratigraphic logs generated during boring advancement and the final well construction logs for these wells.

c. *Comprehensive Ground Water Summary Data Tables* for each monitoring well and temporary well point associated with the site. These tables should include all historic ground water sampling detects up to the most recent sampling event. Ideally this table will also include the hydraulic gauging data associated with each sampling event conducted at the site. If this is not possible, the hydraulic gauging data may be included on a separate table. These tables should be updated, as necessary, to include the most recent ground water quality data.

d. Additional detail regarding the Tentatively Identified Compounds (TICs) identified in ground water at the site, including the identity and concentrations of the TICs identified in ground water during each sampling event is requested. The tabulated data include on the maps being submitted do not contain this information.

e. Please verify that the sampling protocols required in the NJ FSPM are being followed and that the appropriate purge and sampling documentation will be provided when reporting the data derived from these sampling events. It is noted that a low flow purge and sampling (LFPS) method is being utilized for the collection of ground water samples.

It is noted that the interval targeted for sampling within the water column at site-related monitoring wells is variable between wells. It is not readily apparent that the worst case zones (i.e. those that coincide with the identified subsurface contamination) are being selected for low flow purge and sample collection at each monitoring well. As this may affect interpretation of the degree of landfill related impacts to the shallow water bearing zone, it is requested that consideration be given to where the pump is set during low flow purge and sample collection at each monitoring well during future sampling events.

It is also requested that an evaluation be conducted as to the vertical hydraulic gradients that exist at the site within the monitored portion of the saturated zone. As part of this evaluation, please also determine the hydraulic relationship between the shallow ground water at the site and the wetlands / surface water bodies in the vicinity of each ground water monitoring point. It is assumed that this hydraulic relationship may change seasonally in some areas across the site which may affect interpretations of the ground water data, especially if seasonal variability of hydraulic gradients is not considered when designing the ground water sampling schedule.